ABSTRACT

An electrode catheter is introduced into a vein or other hollow anatomical structure, and is positioned at a treatment site within the structure. The end of the catheter is positioned near a junction formed in the structure. This junction can be the sapheno-femoral junction. The position of the catheter near the junction is determined based on a signal from a device associated with the catheter within the structure. A fiber optic filament which emits light is used with the catheter or a guide wire over which the catheter is advanced. The light is visible externally from the patient. The light dims and may no longer be externally visible at the sapheno-femoral junction where the catheter moves past the deep fascia and toward the deep venous system. The position of the catheter can be determined based on this external observation. The position of the catheter can also be determined based on measured parameters such as temperature or flow rate within the structure, and the measured changes in one or more of these parameters as the catheter nears the junction. The hollow anatomical structure can be compressed for this procedure. The position of the catheter can also be determined mechanically by including a hook-shaped tip on the catheter or guide wire which would physically engage the junction.